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MAR 13 2013

Ref: 8EPR-N

Ms. Jennifer Fleuret
Rawlins Field Office
Bureau of Land Management
P.O. Box 2407
Rawlins, Wyoming 82301-2407

Re: Continental Divide-Creston Natural Gas Development Project Draft Environmental Impact Statement CEQ#20120373

Dear Ms. Fleuret:

The U.S. Environmental Protection Agency (EPA) Region 8 has reviewed the Continental Divide-Creston Natural Gas Development Project Draft Environmental Impact Statement (DEIS) prepared by the Bureau of Land Management (BLM). Our comments are provided for your consideration pursuant to our responsibilities and authority under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C), and Section 309 of the Clean Air Act, 42 U.S.C. Section 7609.

We appreciate our discussions to date on this project. These discussions have allowed us to work through a number of concerns regarding air resources, and although there are still some outstanding concerns, we remain committed to working with the BLM to seek ways to address them.

Project Description

Operators propose to develop 8,950 gas wells within the 1.1 million-acre Continental Divide-Creston (CD-C) project area located in Carbon and Sweetwater Counties west of Rawlins, Wyoming. There are more than 4,400 existing oil and gas wells and associated infrastructure in the project area. Alternatives analyzed in the DEIS include: the Proposed Action; Alternative A, 100-Percent Vertical Drilling; Alternative B, Enhanced Resource Protection; Alternative C, Surface Disturbance Cap – High and Low Density Development Areas; Alternative D, Directional Drilling; and Alternative E, No Action.

The EPA's Comments and Recommendations

The following comments and recommendations focus on near field air quality and water resources. Given the size of the Proposed Action combined with the high levels of existing development in the area, the EPA is particularly interested in the BLM's approach to ensuring protection of these resources.

Along with an explanation of these comments, we offer recommendations on how the BLM might address our remaining concerns.

Near-field Air Quality

Preventing Predicted Exceedances of the NAAQS

Near field air quality modeling performed for the project predicts exceedances of the NAAQS for 24-hour PM2.5, 24-hour PM10 and 1-hour NO2. The DEIS includes a commitment to mitigate impacts in order to "demonstrate compliance with the NAAQS." This language could be interpreted to mean that mitigation will only be required if a violation of the NAAQS is predicted. This approach would be problematic because exceedances of the NAAQS can occur without triggering a violation of the NAAQS, and exceedances are indicative of air quality that is not protective of public health. Consequently, the EPA would consider this impact to be significant.

We understand that the BLM's intended approach is to prevent exceedances of the NAAQS and that the BLM will clarify this in the final EIS. More specifically, based on our discussions, the EPA is interpreting the language in the DEIS to mean:

- that BLM will prevent exceedances of the NAAQS and WAAQS by requiring mitigation if a modeled impact is adverse.
- BLM will complete the revised modeling analysis before the final EIS.
- BLM will consider a modeled impact to be adverse if the reported pollutant concentration (e.g., 98th percentile, 99thpercentile, highest value, or annual mean) in the revised modeling analysis is greater than the applicable NAAQS/WAAQS during any one of the modeled three years.[1]
- BLM will require mitigation measures through the application of one or more emissions control measures, such as, but not limited to, those described in *Section 4.5.9 Unavoidable Adverse Impacts and Additional Mitigation.* BLM will determine specified mitigation measures and then model their impact on air emissions in a revised modeling analysis as part of the final EIS to demonstrate that the resulting mitigation measure(s) will prevent exceedances of the NAAQS and WAAQS. The resulting mitigation measure(s) will also become required conditions in the Record of Decision (ROD). Additionally, in lieu of or in addition to required mitigation, the BLM may limit the placement, scale, phasing, and/or intensity of development in order to prevent (as demonstrated through the modeling) predicted NAAQS/WAAQS exceedances.

Presentation of Air Quality Impacts

The DEIS' Air Quality Technical Support Document (AQTSD) averages near field air quality impacts over a three year period, which results in lower impacts than are present in the first two years of this

[1] This approach excludes the highest modeled results for some of the NAAQS and eliminates worst-case meteorological conditions. For NEPA purposes, this approach also provides a sound basis for ensuring modeled significant adverse air quality impacts will be avoided.

three year period. While the three year averaging approach is useful for determining compliance with certain Clean Air Act regulatory requirements, it does not disclose the project's potential for short term environmental and/or health impacts. We recommend revising the approach outlined in the AQTSD for calculating concentrations of 24-hour PM2.5, 24-hour PM10 and 1-hour NO2 during drilling and construction to provide information about short term impacts. We suggest presenting the 4th maximum 24-hour value for PM 10, the 8th maximum 1-hour NO2 value, and the 8th maximum 24-hour value for PM2.5 from each of the three modeled years to provide a more informative evaluation of the impacts.

The air quality impacts section of the DEIS does not include a discussion of the predicted NAAQS exceedances identified in the AQTSD and Appendix L (Supplemental Near-Field Modeling Results). Consequently, the DEIS gives the impression that the near field air quality impacts will be less significant than the modeling actually predicts. We recommend that the BLM include the predicted NAAQS exceedances within the air quality impacts section so that the final EIS discloses the project's impacts.

We note that the near-field modeling results included in Appendix L do not include background concentrations. When the background values are added to the numbers in the tables, it appears that there will be exceedances of the NAAQS. To assure impacts are accurately disclosed, we recommend adding the background concentrations into this table. For the same reasons, we also recommend that in the final EIS, the BLM add the background values to the modeling results and compare the resulting values to the NAAQS.

The DEIS and AQTSD include modeling results from numerous operating scenarios depicting options for numbers of wells, rigs and other equipment operating simultaneously. Several of the operating scenarios predict exceedances of the NAAQS (PM2.5, PM10, and NO2). It is not clear within the DEIS and AQTSD how the operating scenarios relate to the Proposed Action and other action alternatives. In order to understand the impacts of the alternatives evaluated in the EIS, we recommend that the final EIS identify which scenarios are represented in each of the alternatives. We also recommend that the modeling analysis for any scenarios that would be part of the Preferred Alternative demonstrate that adverse air quality impacts can be avoided. We note that the gas plant and compressor station were modeled individually. We recommend that the final EIS explain that these sources will not be co-located, and therefore, there will not be overlapping impacts associated with these two facilities.

The DEIS states that the BLM intends to remodel air quality impacts prior to issuance of the final EIS. If the revised modeling predicts impacts that are substantially different than those predicted in the DEIS, we recommend that the BLM prepare a supplement to the DEIS to provide the public with an opportunity to understand those results and evaluate whether further comments should be provided.

Mitigation Measures

We recommend that the BLM require in the final EIS and ROD all mitigation measures used to define the emission inventory associated with the operating scenarios for the Preferred Alternative. Another option would be to require mitigation measures with equivalent air quality benefits if those the BLM assumed are not viable for certain operating scenarios.

As discussed above, the modeled near field emissions for this project predict numerous exceedances of the NAAQS. The EPA supports the BLM's commitment to prevent these exceedances. We believe

additional mitigation measures for NOx and PM, beyond those identified in the DEIS, may be necessary to meet this commitment. Our conclusion is based on the fact that the current modeling, which includes most of the mitigation identified in the DEIS, shows exceedances of the NAAQS. We recommend adding the following mitigation options to the list of NOx mitigation techniques included in the final EIS:

- using generator sets or natural gas to power drill rig engines; and
- using selective catalytic reduction on Tier 2 drill rig engines.

Similarly, we recommend adding the following mitigation options to the list of PM mitigation techniques included in the final EIS:

- wind barriers, rumble strips or washed rock 100 feet prior to exit of vehicles and equipment onto pavement; and
- on-site speed control during construction and operation of the project.

The Western Regional Air Partnership Dust Control Handbook, September 7, 2006, and associated web site, http://www.wrapair.org/forums/dejf/fdh/, includes information regarding these mitigation options that may be helpful to the BLM.

Cancer Risk Mitigation

The DEIS predicts long term project-related cancer risk within 1.25 miles from production sources to be up to 2×10^{-5}. The AQTSD states that cancer risks were evaluated based on the Superfund National Oil and Hazardous Substances Pollution Contingency Plan where a cancer risk of 1×10^{-6} is generally acceptable. Based on our review of the DEIS, the primary sources of this risk are formaldehyde emissions from flares, the compressor station and the gas plant. We understand from our discussions that the BLM is planning to perform additional modeling of formaldehyde emissions before the final EIS in an effort to provide more representative results that could be lower than current modeling predicts. If the re-modeling continues to predict elevated cancer risk, we recommend that the final EIS include a discussion of how the elevated risk compares to the 1×10^{-6} threshold and, as appropriate, identify specific measures necessary to reduce formaldehyde emissions to acceptable cancer risk levels. The DEIS states that mitigation measures for NOx emissions required to demonstrate compliance with the 1-hour NO2 NAAQS also will decrease the predicted cancer risk impact for formaldehyde. However, it is unclear which of the NOx mitigation options listed in the DEIS will reduce formaldehyde from production sources. Please clarify this.

Surface Water Resources

Analysis of Available Surface Water Quality Data

The DEIS presents existing data from surface water samples collected in and near the project area. It does not, however, appear to analyze this data. The EPA recommends that the BLM present an analysis of this data in the final EIS to characterize existing conditions. To accomplish this, we recommend discussing in the final EIS the current water quality conditions for each water body, comparing existing conditions to existing water quality standards or other reference conditions and presenting associated water quality trends.

Identification of Impaired Waters

The DEIS identifies two Clean Water Act (CWA) Section 303(d) impaired stream segments in the project area. Muddy Creek WYLS140500040104_01 is impaired due to habitat alterations, and Muddy Creek WYLS140500040308_01 is impaired due to exceedances of the chloride and selenium criteria, primarily caused by livestock grazing. We understand that the Wyoming Department of Environmental Quality (WDEQ) has not assessed the water quality in all the water bodies within and adjacent to the project boundary. In view of this partial gap in our understanding of the quality of all stream segments, we recommend that the final EIS identify each water body within and adjacent to the project area and indicate whether WDEQ has assessed its water quality condition, and if so, summarize the results of that assessment.

Surface Water Impacts

The BLM is projecting that the surface disturbance associated with the project may have long-term surface water impacts, including impacts to impaired waters in the Muddy Creek watershed. The EPA is particularly concerned about impacts associated with the Proposed Action and Alternative A, given that the DEIS states, "Under the Proposed Action and Alternative A, total surface disturbance would be great enough that existing protection and mitigation measures would not necessarily prevent exceedance of significance levels for [degradation of water quality and potential soil loss]." In light of the existing impaired water quality and the potential for long-term sediment loading associated with the project, the EPA recommends that the final EIS and ROD discuss what will be required to assure water quality is not further impaired due to erosion and/or sedimentation. More specifically, we recommend that BLM require the following BLM-identified mitigation measures in the Preferred Alternative:[2]

- set-back distances of 0.25 mile for springs, wells and wetlands and 0.5 mile for perennial streams within the Muddy Creek watershed
- the additional enhanced resource protection measures for the Muddy Creek watershed that are included as part of Alternative B.

Sediment Load Analysis

Depending on the alternative selected, the activity predicted in the DEIS could result in up to 61,700 acres of new surface disturbance. Erodible soils represent a significant source of pollutants in the project area. Depending on a host of variables including soil characteristics, industrial operations and topography, associated runoff could introduce sediments as well as salts, selenium, heavy metals and other pollutants into already impaired surface waters. To fully disclose and, if necessary, mitigate the potential impacts of soil disturbance, we recommend that the final EIS include an estimate of erosion rates for each alternative. For example, the Wyoming BLM's Bighorn Basin Draft RMP/EIS estimated erosion rates based on projected amount of surface disturbance, types of surface disturbance and general characteristics of the basin (erodible soils, slopes, etc.). Erosion rates were calculated using the Water Erosion Prediction Project model (WEPP), a web-based interface designed by the United States Forest

[2] The DEIS includes these mitigation measures as components of Alternative B at pp.4-39. We note that the description of Alternative B in Section 2.2.3 does not include these set-back distances. We recommend correcting this omission in the final EIS.

Service and can be accessed at http://forest.moscowfsl.wsu.edu/fswepp/. We recommend that the BLM consider using this model.

Ground Water Resources

Identification of Drinking Water Resources

We recommend that the final EIS identify the location of source water protection zones, sensitive aquifers, and recharge areas. The *Wyoming Groundwater Vulnerability Assessment Handbook* (SDVC Report 98-01, 1998) includes useful information for developing maps of aquifer sensitivity and shallow groundwater aquifers. This information could help the BLM manage development to protect groundwater resources.

We understand from the DEIS that the BLM believes several aquifers do not qualify as Underground Sources of Drinking Water (USDWs) because they are not currently being used for human consumption or are too deep. In fact, federal regulations define a USDW as an aquifer of portion thereof: (a)(1) which supplies any public water system; or (2) which contains a sufficient quantity of ground water to supply a public water system; and (i) currently supplies drinking water for human consumption; or (ii) contains fewer than 10,000 mg/l total dissolved solids; and (b) which is not an exempted aquifer.(See 40 CFR Section 144.3) We recommend that the final EIS identify USDWs based on this definition. Correctly identifying all USDWs in the project area will help to ensure that these resources are adequately protected.

In order to evaluate and disclose the potential impacts of development associated with extracting gas from the Almond Formation on drinking water resources withdrawn from the Wasatch Formation, the EPA recommends that the BLM:

- identify the lower extent of the Wasatch formation;
- identify the distance between the Wasatch formation and the Almond formation; and identify any confining layers between the Almond and the Wasatch formations, which would serve to prevent migration of water or contaminants.

Setbacks for Drinking Water Protection

Based on the information in the DEIS, the EPA understands that there are six wells that supply the public water system for the Town of Wamsutter within the project area. There are also 1,081 groundwater wells in the area. To minimize the potential for impacts to drinking water, we recommend that the final EIS and ROD include the following mitigation measures:

- site gas wells at least 0.5 mile from any public water supply wells.[3]
- site gas wells at least 500 feet from domestic water wells.[4]

[3] This setback has recently been used by BLM-CO in the White River Field Office RMP DEIS.
[4] The Casper RMP ROD requires Controlled Surface Use within 500 feet of water wells.

These setbacks offer reasonable assurances that unintended discharges from oil or gas wells will attenuate before reaching a drinking water supply well.

Casing and Well Design

The DEIS states that well drilling and completion activities are not likely to impact existing groundwater quality as long as those activities are in compliance with BLM's Onshore Oil and Gas Order No.2. We recommend that the BLM consider including the following measures in the final EIS to further ensure that BLM's Onshore Oil and Gas Order No.2 serves to protect groundwater resources. This information is based on our expanding knowledge about the relationship between gas development and groundwater resources.

- a well design requirement to set surface casing and cement to a specific formation and/or depth if there are underlying USDWs;
- a requirement for an intermediate string of casing and cement if very deep aquifers are encountered; and
- a requirement for completion of a cement bond log on the surface and any intermediate casing for each well to verify the cement job.

Mud and Produced Water Management

The DEIS describes limitations on the use of injection wells for mud and produced water disposal within the project area. Because of these limitations, the DEIS states that existing evaporation ponds will be expanded and that an additional 20 evaporation ponds are anticipated to be added.

Since evaporation ponds and mud pits can lead to groundwater contamination, we recommend that the BLM strongly encourage closed loop or pitless drilling of the production hole to avoid the need for these disposal facilities. We also recommend that the BLM encourage recycling and reuse of mud products and production water. In addition, the BLM could consider requiring completion and stimulation fluids returned to the surface to be contained in tanks to avoid the need for pits. We appreciate that produced water will be used in drilling mud systems and completion operations. This will reduce the volume of fresh make up water needed from other sources in addition to reducing the amount of produced water that would need to be injected or evaporated.

Water Monitoring Plan

We recommend that the BLM consider requiring water quality monitoring in the project area prior to, during, and after the project to detect and prevent impacts to both groundwater and surface water resources. A recent example of a thorough water monitoring plan is the "Long-Term Plan for Monitoring of Water Resources" developed by BLM for the Gasco Energy Inc. Uinta Basin Natural Gas Development Project Final EIS. Also, the National Ground Water Association has developed information on the importance of baseline sampling for private wells and types of analysis recommended, which can be found at: http://www.ngwa.org/Documents/Water_Wells-in_proximity_info_brief_2011.FINAL.pdf. We recommend that monitoring be conducted consistent with the approaches included in these cited documents.

General Recommendations

There are management options identified in Alternatives B, C, and D that could be included in the Preferred Alternative to minimize the potential environmental impacts of the project. Accordingly, we recommend that a Preferred Alternative be identified which incorporates these management options. Specifically, we recommend that BLM identify a Preferred Alternative that includes these BLM-identified measures to reduce impacts to air and water resources:

- directional drilling (Alt. D);
- limitations on surface disturbance (Alt. C);
- uniform application of dust-abatement procedures during construction and drilling operations (Alt. B);
- cluster development of production facilities (Alt. B);
- minimize construction of new roads (Alt. B);
- road design that minimizes surface disturbance (Alt. B);
- reclamation of roads once production starts (Alt. B);
- pipelines for transporting liquids offsite or installation of larger-capacity storage tanks to reduce the number of truck trips to well sites (Alt. B);
- improvements to existing roads or construction of new roads to minimize hydrologic alteration (Alt. B);
- no new road crossings of Muddy Creek (Alt. B); and
- enhanced resource protection measures for the Muddy Creek and Bitter Creek corridors/Watersheds included in Section 2.2.3.4 (Alt. B).

EPA's Rating and Recommendations

Consistent with Section 309 of the CAA, it is the EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project. The DEIS does not identify a preferred alternative; therefore, we have rated each of the action alternatives. Because of the potential significant surface water quality impacts disclosed in the DEIS for the Proposed Action and Alternative A, we have rated these alternatives as "EO" – "Environmental Objections." These impacts should be avoided in order to adequately protect the environment. We have rated Alternatives B, C, and D as "EC" – "Environmental Concerns." Based on our review, and as discussed above, corrective measures may require changes to these alternatives or application of additional mitigation measures that can reduce their environmental impact. We have rated the adequacy of the DEIS as "2"-Insufficient Information. The "2" rating indicates that the EPA review has identified a need for additional information and analysis to fully assess and mitigate all potential environmental impacts of the proposed project. A description of the EPA's rating system is enclosed.

We appreciate the opportunity to comment on these documents, and hope our suggestions for improving them assist you. We would be happy to meet to discuss these comments and our suggested solutions. If you have any questions or would like to discuss our comments, please contact me at (303) 312-6925 or Vanessa Hinkle of my staff at (303) 312-6561.

Sincerely,

Suzanne J. Bohan
Director, NEPA Compliance and Review Program
Office of Ecosystems Protection and Remediation

Enclosure

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements

Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate: EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information: The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new, reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 - - Inadequate: EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.